

# INSTRUCTION MANUAL

MODEL SSK-2-K

NYE VIKING IAMBIC KEYS





## NYE VIKING IAMBIC KEYER M/SSK-2-K

### GENERAL DESCRIPTION:

The Nye Viking Iambic Keyer combines the excellent features of the Nye Viking Super Squeeze Key with the superb reliability of C-MOS integrated circuits, all packaged in a handsome cabinet. It's 2 1/4 lb. weight and non skid feet provide excellent stability. Gold plated contacts insure long life and reliability and eliminate "missing" dots and dashes. Exclusive form fitting, extra long paddles make for tireless keying and provide easy change of pace without changing key adjustments.

A Nye Viking 404 audio oscillator and speaker is included for monitoring and practice keying. The unit will key either negative or positive keyed transmitters up to 200 mils at 250 volts.

A switch on the rear of the chassis determines polarity. The output is terminated in a shielded cable with a standard 1/4" phone jack. A switch is provided to allow "tune-up" and slow speed hand keying with the dash paddle. (It also can be used to simulate old fashioned "bug" keying when in the test position. Make your own dashes.)

The Nye Viking Key in your keyer is designed to give many years of trouble free service and requires practically no care. The knife edge bearings allow free movement of the keying paddles without further adjustment. The tension adjusting spring maintains the paddles against the bearing edge and backstop. If the tension spring is adjusted for "feather touch" there is some tendency for the paddles to "float" up or down on the bearings this does not affect the operation of the key.

The dot generator is wired to the left hand contact assembly and the dash generator is wired to the right hand contact assembly. Left handed people may prefer to reverse these connections.

To adjust spring tension remove the cover and loosen the 6-32 locknut on the side of the dash paddle with a 1/4" open end wrench and adjust the screw to suit. Retighten the locknut when finished adjusting.

To adjust the contact spacing or paddle travel, loosen the two contact bracket mounting screws and adjust contact spacing to suit.

CAUTION: NEVER attempt to clean the contacts with anything other than a very soft tissue---the gold plating is 24 carat and very soft. It would be destroyed by an abrasive.

The keyer operates with an internal Nicad 6 Volt battery with an external charger. NEVER operate the keyer without the proper battery; Nye Viking part # 84307B.

#### INSTALLATION:

The Nicad rechargeable battery must be charged prior to first using the keyer. To charge, plug the charger into a 115 Volt AC outlet and into the rear of the unit with the plug provided. Allow at least 10 hours charging time. Once fully charged the battery will operate your keyer for many hours without further charging. You can operate with the charger plugged in or not.

NEVER operate the keyer without the proper battery in place. Nicad batteries should always be kept charged for longer life. The charger can be left on continuously although it is probably best to disconnect it if the unit is not going to be used for several weeks.

Set polarity switch in the back to correspond to the polarity of your transmitter, positive or negative. Adjust the speed to suit you ability to receive. Place your transmitter in the CW transmit mode and plug the keyer into the key jack of your transmitter. (If the polarity switch is set incorrectly your transmitter will be automatically keyed.)



- The three slide switches on the rear on the keyer;
- 1 - Turn the speaker on and off.
  - 2 - Convert the dash paddle to manual.
  - 3 - Determine the output polarity.

#### OPERATING INSTRUCTIONS:

The polarity switch can also be used as a tune-up switch as each output is protected by a reverse diode which will key most transmitters in the opposite polarity. The center switch converts the dash paddle to straight keying and allows you to use the keyer like an old fashioned "bug".

You can monitor from the speaker in the keyer or the monitor in your transmitter which ever you wish.

You can change the speed control at any time--from about 5 words per minute to over 50.

#### SOME TIPS ON USING YOUR NEW NYE VIKING KEYER.

Iambic keying simplifies the sending of CW code over old fashioned "bug" and hand keys. Many letters are formed with a single squeeze such as C's K's and R's. These should be practiced until perfect.

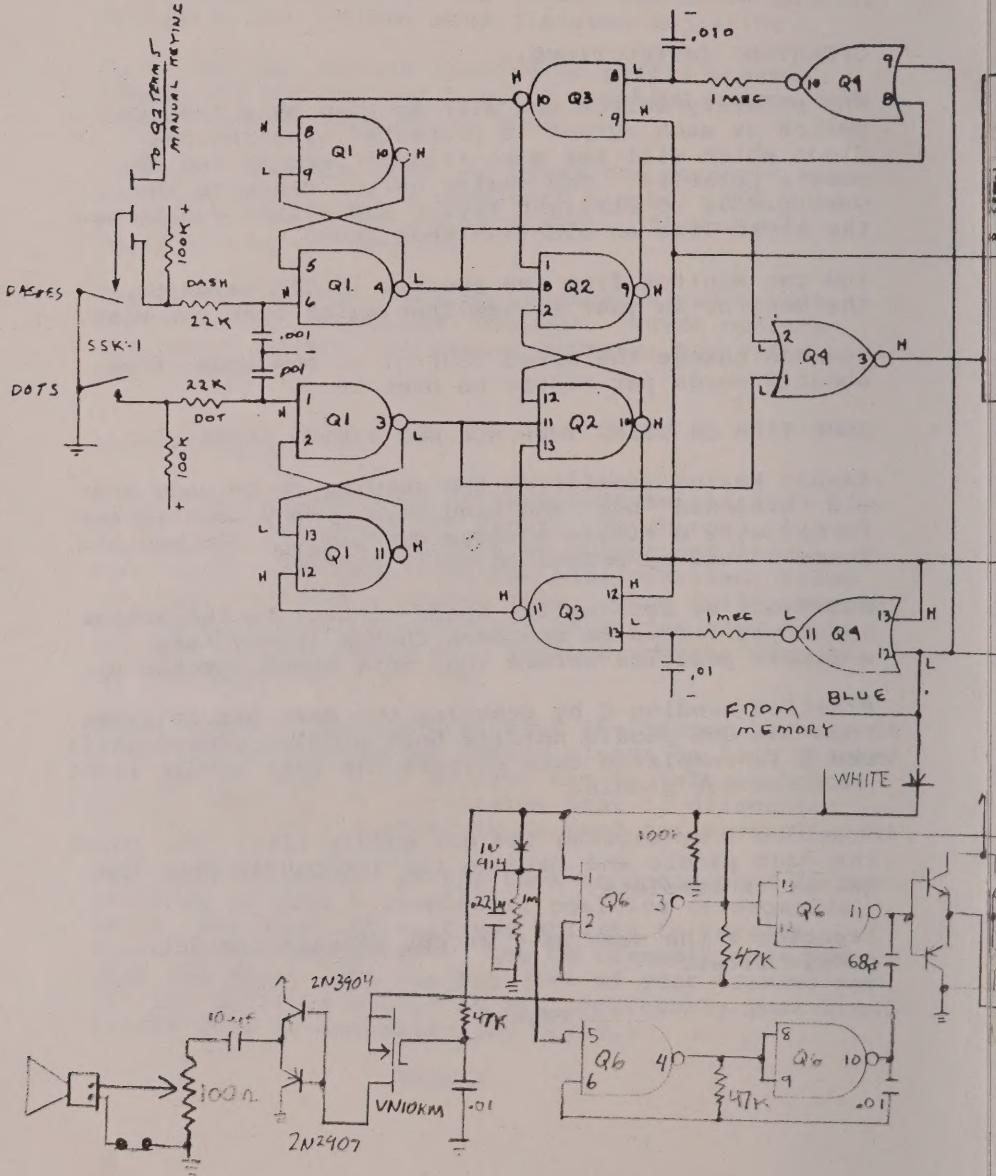
Start off by setting the speed control to the letter speed you intend to use even though it may take a little practice before your work speed catches up.

Practice sending C by pressing the dash paddle first then the dot paddle holding both paddles closed until the C is completed then release the dash paddle first then the dot paddle.

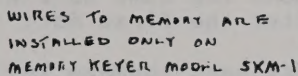
Practice F by closing the dot paddle first then touch the dash paddle and release the dot paddle when the letter is complete.

Practice K the same as C except release the dot paddle first.

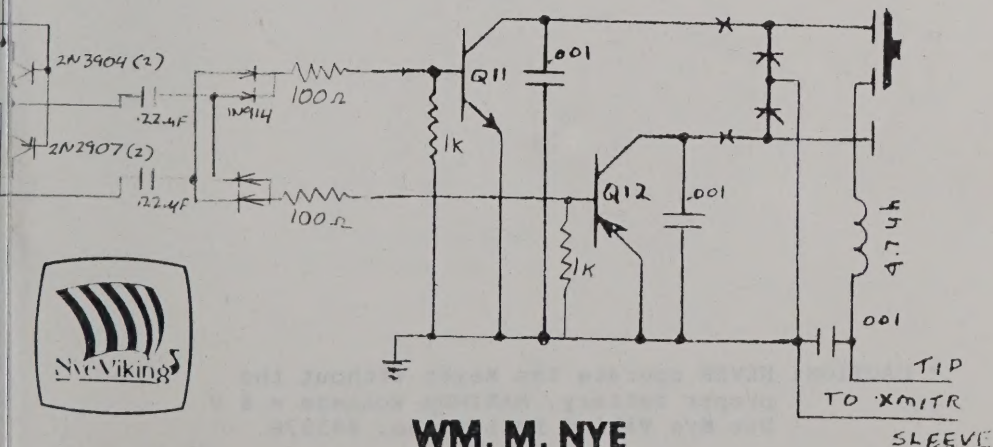
SSK-2-K



14346 M



- Q1 - 4011B  
Q2 4023B  
Q3 4093B  
Q4 4001B  
Q5 4027B  
Q6 4093B



**WM. M. NYE  
COMPANY**



L is done the same as F except you touch the dash paddle after the first dot.

Q and Y are easy squeeze key characters, just hold the dash paddle in and touch the dot paddle at the right time.

KEEP the cover in place to reduce contact fouling.

#### MAINTENENCE:

The SKK-2-K requires little or no maintenence except to keep the battery charged. NEVER operate the keyer without the battery in place---It will damage or ruin some of the chips.

#### TROUBLE SHOOTING:

Your keyer should only be serviced by someone experienced in CMOS technology. There are, however, a few things you can try first if you should have problems. It is possible for the latch circuits to become locked up in the wrong mode. This is easily corrected by disconnecting the battery for a few moments. Be sure the power supply is disconnected. Check the battery voltage and charge if too low, it should read 6 volts. Use Nye Viking Battery number 84307-B.

To return the unit to the factory for repairs be sure to pack it carefully to protect the paddles. All NYE VIKING Keyers are guaranteed against defective workmanship. Remember---if you mess it up trying to fix it you can void the warranty.

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\* CAUTION: NEVER operate the Keyer without the proper battery. MAXIMUM Voltage = 6 V  
Use Nye Viking Battery no. 84307B



#### WARRANTY

"Nye Viking" products manufactured by the Wm. M. Nye Company, Inc. are guaranteed for a period of two (2) years from the date of original purchase against mechanical breakdown and/or electrical failure, except for damage caused by willful act or destruction by fire. The Company's liability shall be limited to the repair or replacement of the defective item, at the Company's discretion, F.O.B. the Company's factory in Bellevue, Washington.

In accordance with the Magnuson-Moss Warranty Act, effective January 1, 1977.

This warranty gives specific legal rights, and you may also have other rights which vary from state to state.



# OTHER NYE VIKING PRODUCTS

Model No.	DESCRIPTION
ANT-001	All Band Dipole Antenna.
MB-I-01	100 Watt Antenna Tuner w/out Balun.
MB-I-02	100 Watt Antenna Tuner with balun.
MB-IV-A	3000 Watt Antenna Tuner w/out Balun.
MB-IV-B	3000 Watt Antenna Tuner with Balun.
MB-V-A	3000 Watt Tuner w/Antenna Switch.
50216-B	Split Stator 7000 Volt Var. Capacitor.
50217	24 Micro-henry Variable Inductor.
020-001	2000 Watt Low Pass Filter.
SWR-005	Auto SWR/WATT Meter for 1.5 to 30 MHz.
SWR-006	Auto SWR/WATT Meter for 140-160 MHz.
SWR-003	Auto SWR/WATT Indicator for the Blind.
046-001	FCC Approved Phone Patch.
046-003	FCC Approved Phone Patch with Speaker.
046-006	Approved Phone Patch for ICOM sets.

## KEYERS

ESK-001	Iambic Keyer w/out Paddles.
SSK-2-K	Iambic Keyer with built in Paddles.
SKM-016	Iambic Keyer w/ 16,000 bit Memory.

## Keys

310-001	Black Enamel Oval Base Key w/out Sw.
310-003	Same as above w/switch.
312-001	Oval key with Brass Plated Hdwe.
312-003	Same as 312-001 except w/switch.
320-001	Black Enamel Rectangular Base Key.
320-003	Same as 320-001 except w/switch.
321-001	Same as 320 except base is Chrome Pl.
321-003	321 w/switch.
322-001	Brass Hardware on 320 Key.
322-003	Same as 322 except with switch.
330-001	Master Key w/cord and plug.
330-1CP	Master Key w/Chrome plated base.
SSK-001	Squeeze key with dual paddles.
SSK-1CP	Same as SSK except Chrome Plated.
SSK-003	SSK-001 Mtd on base to hold hand key.
404-001	Code Practice set w/out Key.
404-002	Code Practice set with 310-001 Key.
112-001	Telegraph Sounder 4 Ohm.
112-002	Telegraph Sounder 50 Ohm.



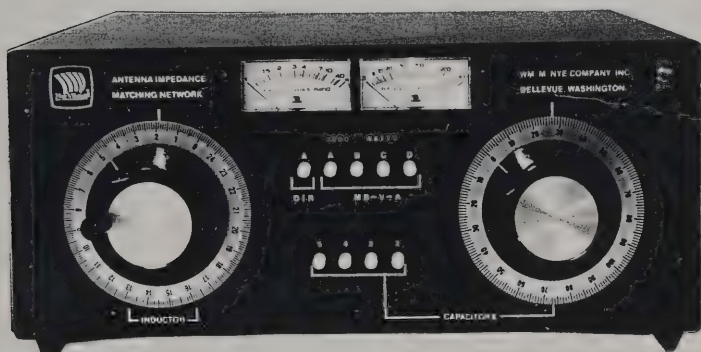


**WM. M. NYE COMPANY, INC.**  
**1614-130th Avenue N.E., Bellevue, WA 98005**

INSTRUCTION MANUAL

Model MB-V-A

NYE VIKING 3000 WATT ANTENNA TUNER



Wm. M. Nye Co., Inc.  
1614 - 130th Avenue N. E.  
Bellevue, WA 98005

WHY USE AN ANTENNA IMPEDANCE  
MATCHING NETWORK -- (MATCHBOX)

There are many reasons to use an antenna tuner---

1. To match the transmitter or amplifier output impedance with antenna input impedance at various frequencies, thus insuring the greatest transfer of power to a given antenna.

2. A good tuner will reduce radiated interference. An antenna tuner properly adjusted will provide 20 or more DB attenuation at 2nd harmonics and above. This amounts to a reduction of harmonic output power of more than 100 to 1---something not accomplished with a standard low pass filter, which normally starts attenuating around 45 MegaHertz. Thus your tuner will reduce the amount of spurious radiation from your radio station and reduce the interference to other services.

3. An antenna tuner allows you to tune over a much wider range of frequencies and still maintain an excellent power transfer to a given antenna.

4. The final amplifier in any transmitter or linear is subject to greater loads as the SWR increases and this extra load results in added heat loss and shorter life for the equipment and poor performance. Many of the new solid state amplifiers have limiting circuits that reduce the power output if the SWR exceeds a predetermined value. Some units will be damaged if the SWR is too high. The antenna tuner reduces the load on the amplifier.

5. Perhaps of equal importance and often overlooked is the attenuation of surious signals into your receiver thus improving reception. The antenna tuner becomes a tuned RF circuit to the input of your receiver.

AN ANTENNA TUNER IS AN EXCELLENT AND VALUED ADDITION TO ANY RADIO STATION. AMATEUR OR COMMERCIAL....



## NYE VIKING ANTENNA IMPEDANCE MATCHING NETWORK

### MODEL MB-V-A

#### DESCRIPTION:

The Nye Viking MB-V-A antenna impedance matching network is a Pi network system consisting of a large variable, silver plated copper ribbon inductor. A split section, high voltage variable capacitor and a bank of high voltage fixed capacitors to provide a wide range of input-output impedance ratios.

Output terminals are provided in the rear for two 50 or 72 ohm outputs "Coax fittings A & B", a single wire output terminal "C", and two porcelain cones for twin lead feeders "D".

A 5 position push button antenna switch:

- (1) Connects the transmitter output directly to Coax "A", bypassing the tuner,
- (2) Connects the tuner output to Coax "A",
- (3) Connects the tuner output to Coax "B",
- (4) Connects the tuner output to single wire output "C",
- (5) Connects the tuner output to twin lead output "D".

CAUTION: DO NOT OPERATE THE ANTENNA SWITCHES WITH POWER ON.

The unit is capable of handling any antenna  $1/4$  wavelength or longer.

An automatic SWR meter and a forward reading RMS Watt-meter provides constant monitoring of your antenna tuning.

The MB-V-A will handle power in excess of 3000 watts into loads between 40 and 2000 ohms impedance with an SWR reading below 1:1.1.

A three kilowatt, trifilar wound, broad band balun provides balanced output to twin lead feeders 200 to 1000 ohms resistance and unbalanced output impedance down to 20 ohms at the Coax "A" & "B" outputs.

The unit features 2  $1/4$ " tuning knobs with 4" dials; a 1 to 25 vernier readout over 360 degrees on the variable inductor tuning plus 360 degree readout on the variable capacitor. The extra heavy guage aluminum cabinet provides adequate shielding.

The input connector from the transmitter or linear amplifier is a standard SO-239 UHF fitting and the output terminals are high voltage porcelain feed through cone fittings and SO-239A Teflon UHF coax fittings for 50 or 72 ohm coaxial cables.

Frequency range is 1.5 to 30 megaHertz (160 to 10 meters)

The size is 36.8 cm. wide, 17 cm. high, 35 cm. deep.

(14  $1/2$ " wide, 6  $3/4$ " high and 12  $1/4$ " deep)

Weight: 6 Kilograms --shipping wt: 8.5 Kilograms (20 lbs.)

## INSTALLATION

The Nye Viking MB-V-A Matchbox should be installed as close to the transmitter or linear amplifier as possible---the shorter the coax cable the better. In case of TVI, a Nye Viking "Low Pass Filter", Model 020-001, should be installed between the transmitter or final amplifier and the MB-V-A input.

A good ground system is essential especially when tuning single wire antennas. It should be as short and as heavy as possible---preferably connected to an all-metal water pipe or connected to a low resistance grounding rod. If adequate ground connection cannot be achieved, a system of ground radials should be installed (see ARRL Handbook). Too long a ground will also result in the transmitter and Matchbox being "hot" at the high frequencies, and contact with any of the metal parts could cause an R. F. burn.

Single wire antenna length is not critical but should exceed the minimum lengths shown on the chart for each wavelength. Too short an antenna will not tune to resonance, will not load properly, and will have a higher than 1:1 SWR. Antennas exactly  $1/2$  wavelength long should be avoided with single wire antenna installations to reduce the antenna impedance at the Matchbox connection.

Single wire and twin lead feeders are "hot" at the Matchbox end and should be well insulated where they pass through walls and partitions to the outside. Voltages of several thousand volts are easily possible at some frequencies.

Antennas fed with 50 or 72 ohm cable should present a reasonable match at the antenna to cable junction or there will be strong standing waves on the coax with attendant losses and possible cable failure. Antenna systems of this type should be cut to frequency and matched to cable either with a balun or matching stub. Short lengths of 10' or less to a matching network should present no problem.

Connect single wire antennas to the stand-off insulator in the rear, terminal "C". Antennas terminating at less than 40 ohms (i.e.  $1/4$  wave or shorter) can be connected to one of the coax outputs---"A" or "B".

The 3 kilowatt balun on the MB-V-A is designed to feed twin lead feeders 100 to 1000 ohms and to provide a low impedance output at the coax output fittings.

The SWR/Watt meters require a 9 volt battery to operate. A battery has been installed at the factory. To replace the battery, remove the screws holding the cover on the battery compartment in the rear panel. The battery should be replaced at least once each year or sooner if required. The meter combination has an automatic R.F. switch that turns the battery on with about 5 watts forward power. Both meters will return to zero after a five second delay if the forward power drops below 5 or 6 watts.

The watts forward meter is scaled 0 to 300 watts RMS forward power. The meter will automatically switch to the 3000 watt scale if the forward power exceeds 300 watts. A red LED located on the front panel will LIGHT when the meter switches to the high power scale. The meter will stay on the high power scales for about 5 seconds after the power falls below 300 watts. Multiply the scale reading by 10 when the red LED is on.

Your new Nye Viking Automatic SWR and RMS watts meters require no adjustment during tune up and use. The R.F. switch shuts the battery off after a 5 second delay when the forward power drops below 5 watts and both meters drop to zero.

To provide power for the meter back lighting lamps connect a 12 volt (AC or DC) source of power to the 12 volt phono jack on the rear panel. The switch on the front panel turns the lights on and off. Current requirement is about .120 Amps.

#### RECOMMENDED ANTENNA LENGTHS

160 meter	80 feet or longer (100 to 200 ideal)
80 meter	30 feet or longer (45 to 150 ideal)
40 meter	15 feet or longer (25 to 100 ideal)
20 meter	10 feet or longer (20 to 100 ideal)
10 and 15 meter	8 feet or longer (10 to 50 ideal)

Short antennas (less than 3/4 wave) will be directional broadside to the major length of the antenna. Long antennas (Over 2 wavelengths) will tend to be directional off the ends.

#### CAUTION

The "hot" end of an antenna cut close to 1/2 wavelength, or multiple thereof, will have relatively high voltages at moderate power; i.e., 2000 watts P.E.P. at 2000 ohms impedance will have over 2800 volts peak at each end of a half wave antenna or multiple thereof. At 600 ohms, twin lead, there will be over 1500 volts. Adequate insulation should be provided at all feed-through points of the antenna. Care should be exercised to avoid contact to prevent R.F. burns.

The capacitor push button switches should NEVER be operated while power is on. All tuning should be done at low power. (100 watts or less)

Do not apply power with the tuning coil knob removed---the shaft is "hot"...

#### CAPACITOR SWITCH

The 4 push buttons of the capacitor switch allow 5 different amounts of parallel capacity to be switched in and out. There are 3 160 pf fixed capacitors and the variable capacitor has two sections. When the #5 push button is depressed all 5 capacitors are connected in parallel. Depressing the #4 button disconnects one of the fixed capacitors. Depressing the #3 button disconnects 2 of the fixed and depressing the #2 button leaves only the 2 sections of the variable capacitor connected across the output. Releasing all buttons leaves only one section of the variable connected. To release all buttons simply depress any button part way.



## OPERATION

With all connections completed; antenna(s), transmitter, linear if applicable, receiver, a good ground, etc., push one of the antenna switch buttons in to connect the desired antenna. (If your transmitter and/or linear require pre-tuning it might be advisable to connect a dummy load to the "A" coax output and tune up with bypass push button depressed. Then select whichever antenna you desire.)

Tune the receiver to the desired frequency and tune in a signal. Tune the inductor coil and capacitor dials on the tuner for maximum signal strength. If the capacitor tuning gives maximum signal strength at 100 then add capacity by pressing the appropriate push button and retuning. If the maximum signal is still 100 then press the next higher number push button and so on until the maximum signal is tuned in at some number between 0 and 100. Conversely if the maximum signal strength is received when the capacitor dial reads 0 reduce the output capacity by depressing the next lower number. Low impedance antennas will generally require more capacity in the output circuit and high impedance antennas less.

Once the tuner has been pretuned, you can turn on the transmitter at low power (15 to 100 watts) and tune the inductor and capacitor for minimum reading on the SWR meter. Be sure you maintain at least 5 watts forward power while tuning. Again: if the capacitor dial reads 0 or 100 at the lowest SWR reading, subtract or add capacity with the push button switches.

If a linear is used, be sure it is off during the tune up procedure.

## CAUTION

Be sure power is OFF while changing the capacitor or antenna switches. They were NOT designed to handle the arcing that can occur during switching with power on..

When the tuner has been adjusted for minimum SWR, retune the transmitter for maximum watts forward. The linear can now be turned on and adjusted for maximum output. Little or no change should be necessary to the antenna tuner. Even though your output may exceed 3000 watts during SSB transmission, the inertial damping in the meter plus the overload protection will prevent the meter from damage.

Once you have tuned up on a frequency and an antenna, log the readings for that frequency and antenna for future reference.

Slight differences in tuning settings will be noted during rainy periods as compared to dry, and also when other objects are brought closer or farther away from the antenna.

Once dial settings for each band have been logged for a given antenna, it will be a simple matter to tune up on any frequency.

If you tune up and log the lower, middle and high end of each band it should be very simple to tune up on any frequency by referring to your log. a separate log should be made for each antenna.

Some short, single wire antennas will present a lower impedance at the tuner than can be tuned at the single wire terminal (C). Connect these antennas to one of the coax output fittings. (A banana plug makes a good connector for a single wire into the coax fitting.)

The Nye Viking ANT-001 Antenna makes an ideal antenna to use with your Nye Viking Tuner.

#### CAUTION !!

When tuning the MB-V-A or MB-IV-A it is necessary to use only the least amount of fixed capacity for a proper match. Push button #5 for instance should never be used on the 10 meter band. There is a condition when using the higher bands such as 10 and 15 meters, with too much capacity, which will cause damage to the tuner due to high circulating currents.....

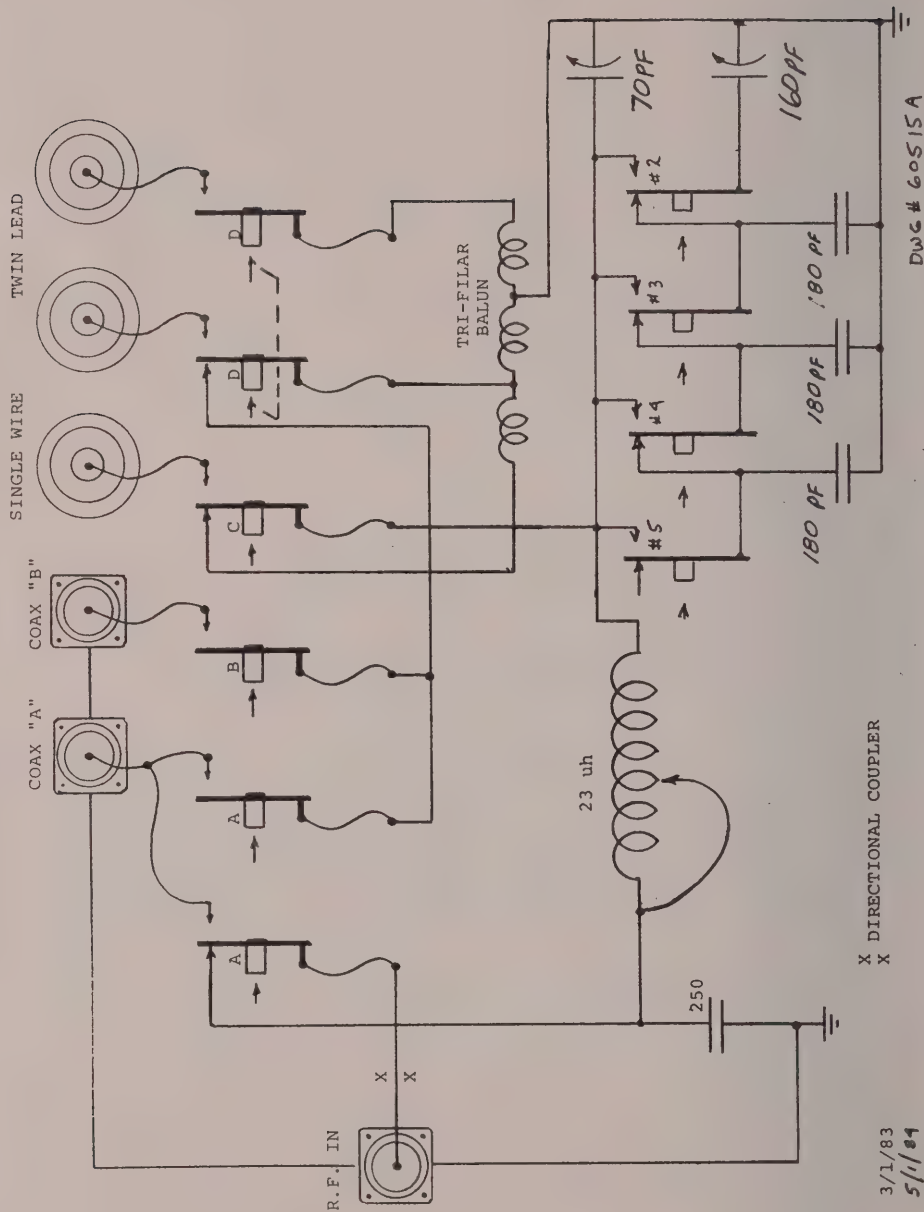
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# ANTENNA IMPEDANCE MATCHING NETWORK WITH ANTENNA SWITCHING

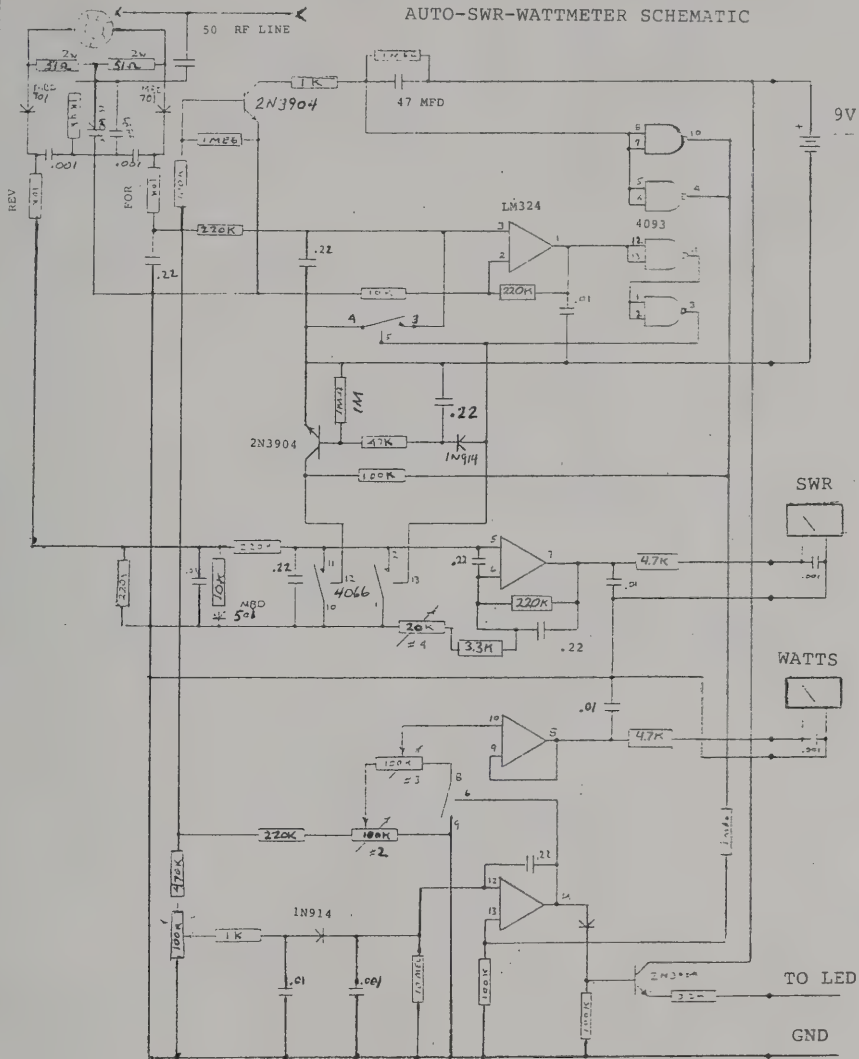


3/1/83  
5/1/84  
10/9/86

MOD.



### AUTO-SWR-WATTMETER SCHEMATIC



1-15-86



**Wm. M. Nye Company**  
1614-130th Avenue N.E.  
Bellevue, WA 98005

20600

## NYE VIKING MB-V TUNER LOG

[illegible]

# OTHER NYE VIKING PRODUCTS

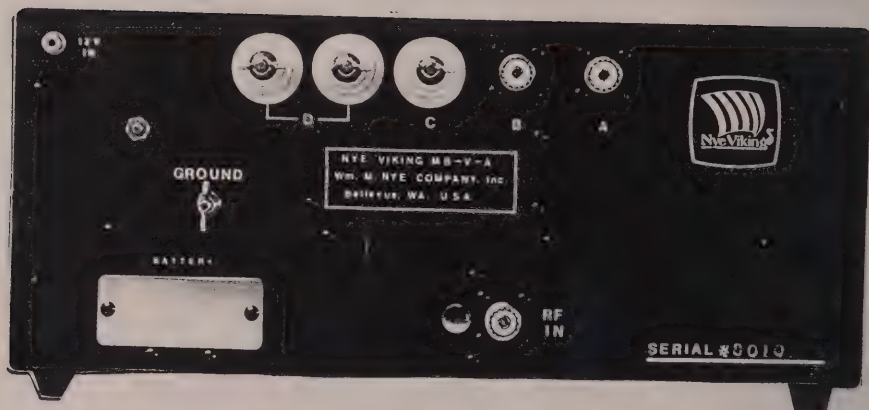
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MB-IV-B	3000 Watt Antenna Tuner with Balun.
MB-V-A	3000 Watt Tuner w/Antenna Switch.
50216-B	Split Stator 7000 Volt Var. Capacitor.
50217	24 Micro-henry Variable Inductor.
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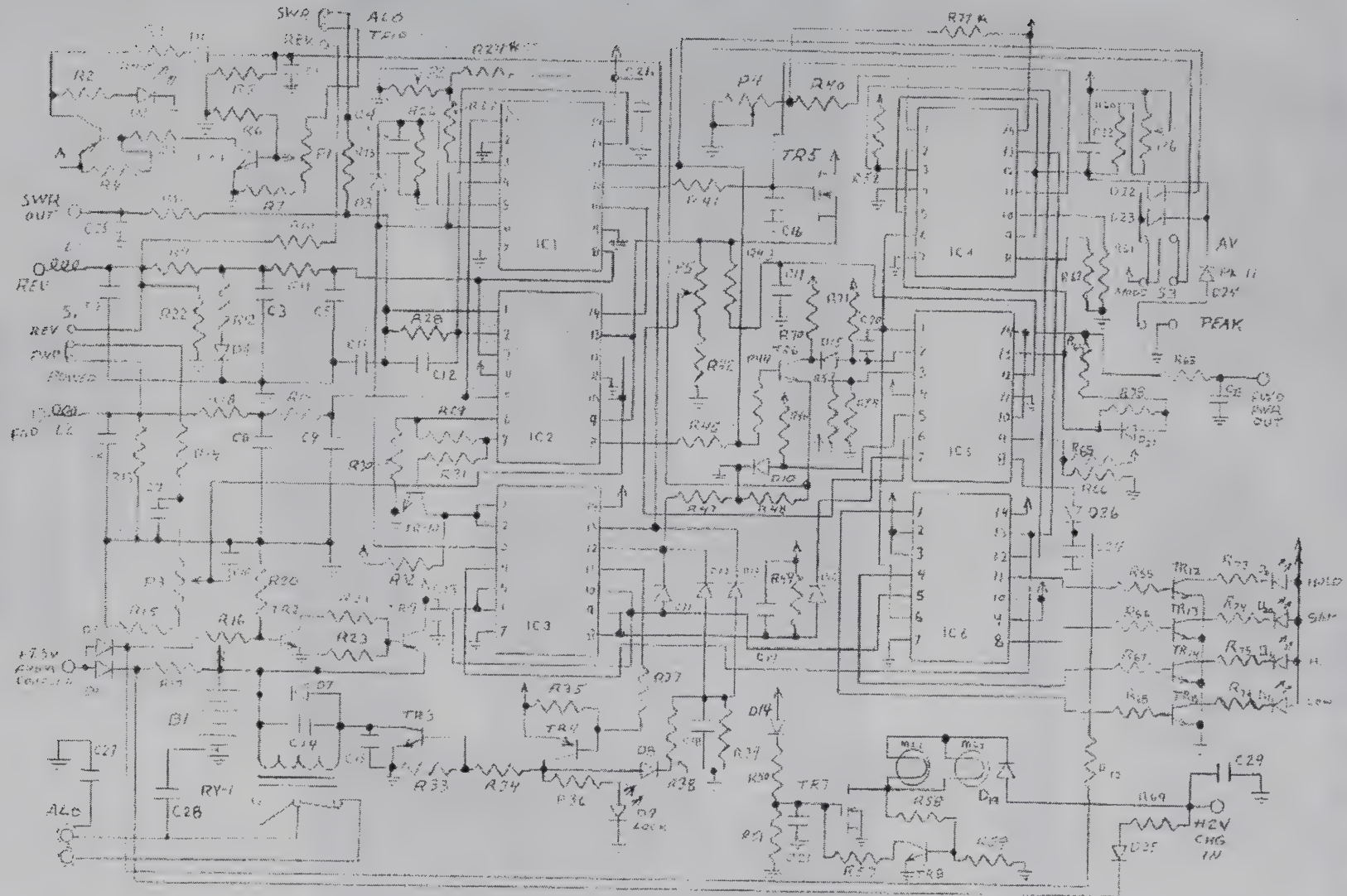
Use  
DISC  
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incomplete





# SCHEMATIC DIAGRAM

RFM-003  
RFM-005



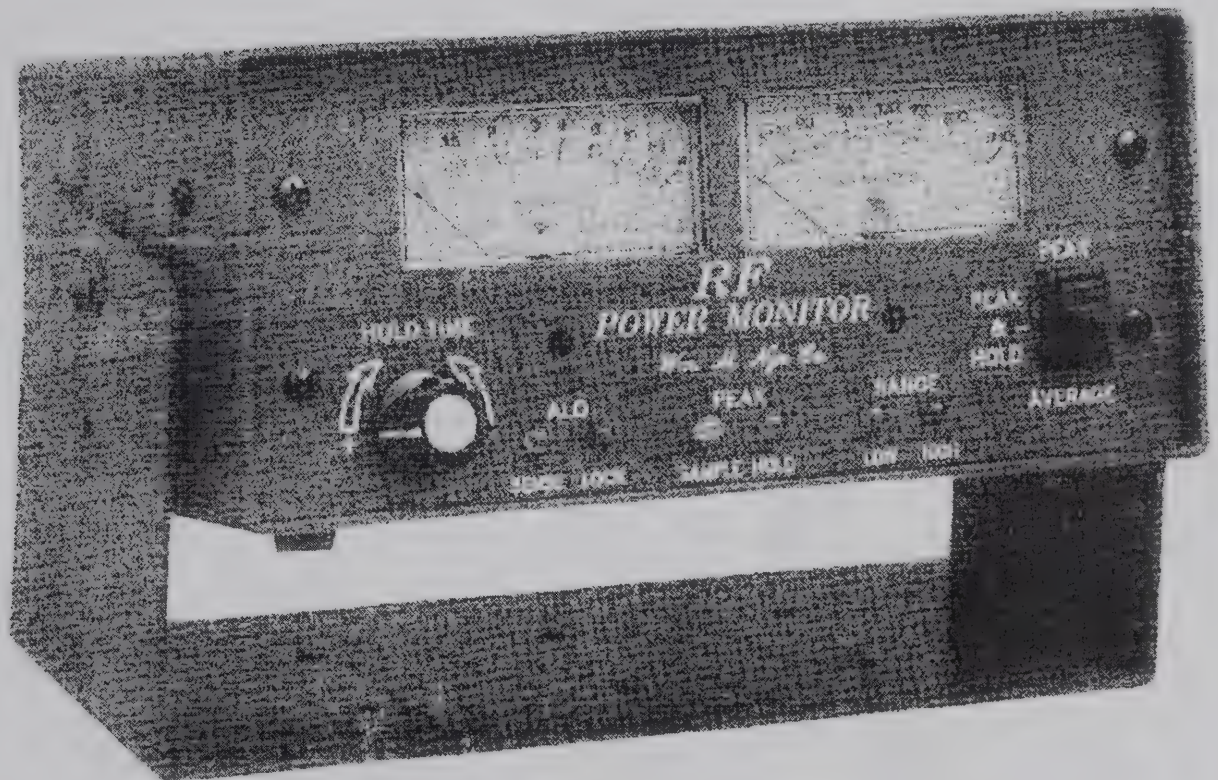
Drg. No. 39632A  
041587  
Rev. 060887  
080787



# INSTRUCTION MANUAL

## NYE VIKING

### RF POWER MONITOR



- MODEL -  
RFM-003  
RFM-005



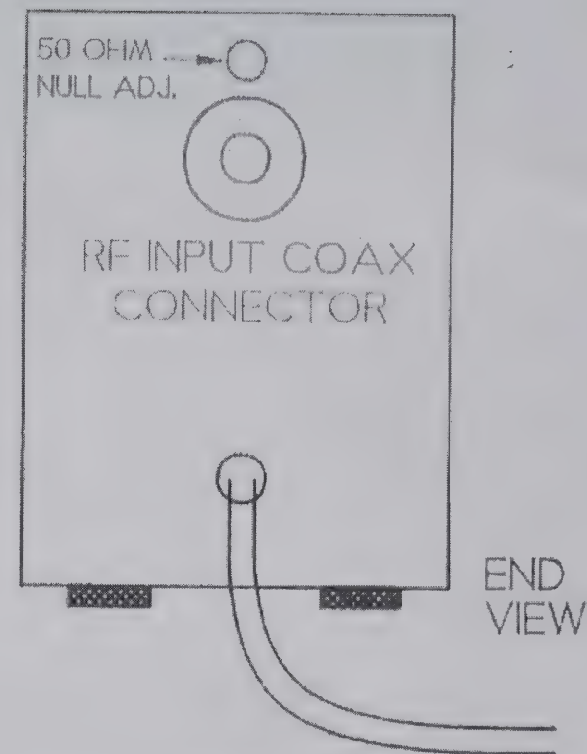
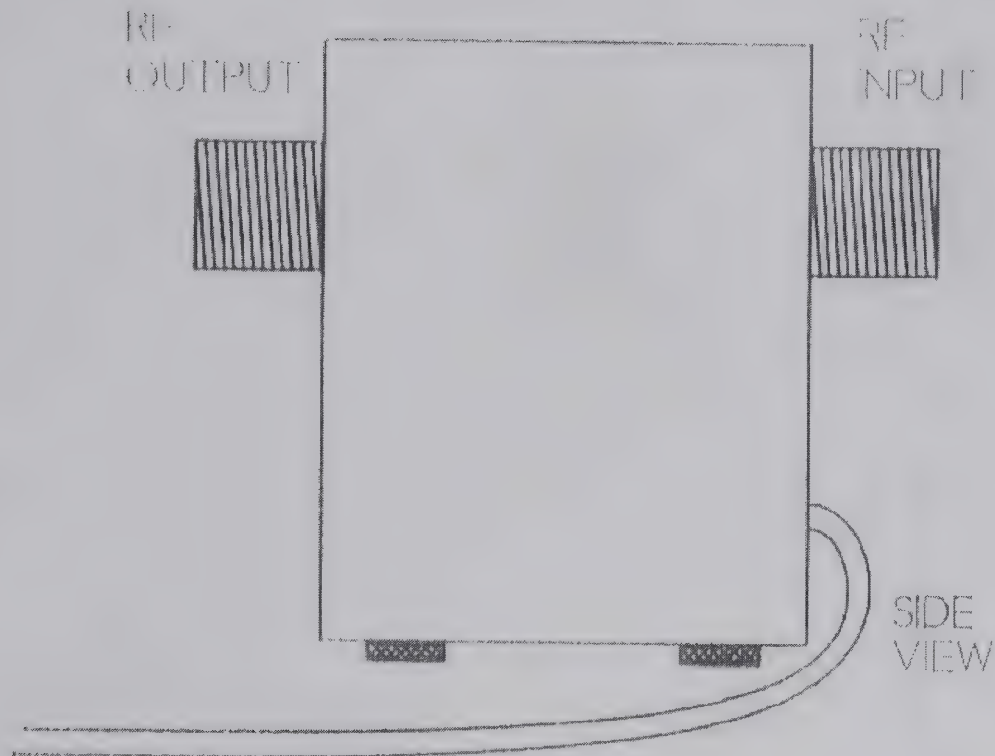




# RFM COUPLER MODULE

MODELS: C-1.8-30-5K

C-1.8-30-5C



## COUPLER MODEL D.C. OUTPUTS

"K" SERIES = 15.00 VOLTS @ 500 WATTS

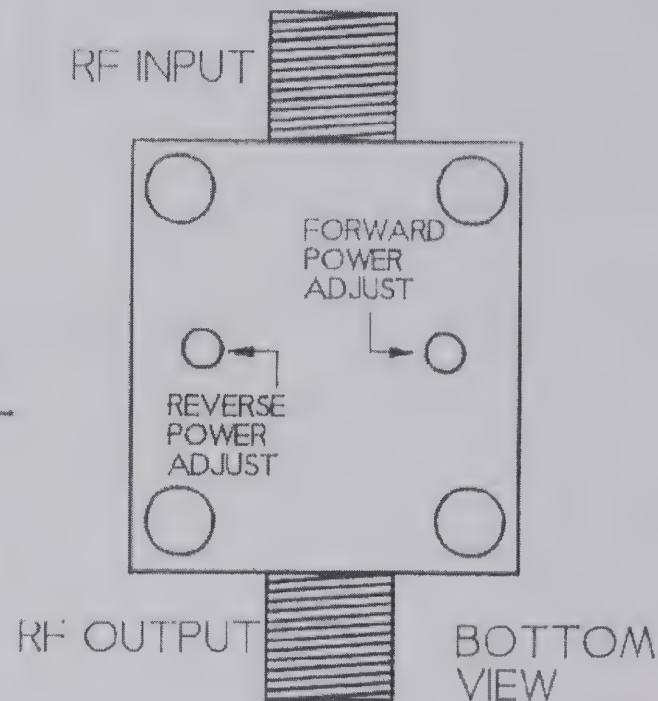
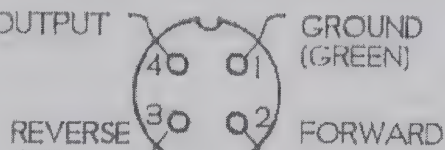
"C" SERIES = 47.40 VOLTS @ 500 WATTS

WM. M. NYE CO, INC  
1614 130TH AVE. N.E.  
BELLEVUE WA, 98005

DN 39640

12-28-87

7.5 VOLT OUTPUT  
(WHITE)





OPERATING INSTRUCTIONS

MODEL 250-0046-003

ICOM

NYE VIKING PHONE PATCH

Complies with Part 68 FCC Rules

FCC Registration Number ABD977-67831-OT-N

Ringer Equivalence 1.5B

William M. Nye Company, Inc.



NYE VIKING PHONE PATCH BUILT EXPRESSLY FOR

INSTALLATION ON ICOM TRANSCEIVERS

INSTALLATION AND OPERATING INSTRUCTIONS

MODEL 250-0046-003

GENERAL DESCRIPTION

The ICOM PHONE PATCH is used to connect a telephone circuit to any communication installation. The hybrid circuit provides a high degree of isolation between the receiver output and the transmitter input circuits, making it an ideal unit for use in voice operated installations.

Section 97.79 (d) states that "the licensee of an amateur station may permit any third party to participate in amateur radio communication from his station, provided that a control operator is present and continuously monitors and supervises the radio communications to insure compliance with the rules."

The Commission noted that this required a control operator to be on duty at all times during these operations. Furthermore, it said, all calls not initiated at an amateur station had to be screened by the control operator before being placed on the air.

Section 97.114 prohibits amateur licensees from transmitting or delivering third party traffic "involving material compensation, either tangible or intangible, direct or indirect, to a third party, a station licensee, a control operator, or any other person" or delivering third party traffic consisting of business communications on behalf of any party.

INSTALLATION AND INITIAL ADJUSTMENT

Installation:

1. Before installing the ICOM phone patch, you must call the telephone company and request them to install a type RJ-11 JACK to be used to connect the phone patch FCC Registration No. ABD977-67831-OT-N with a ringer equivalence of 1.5B manufactured by William M. Nye Company, Inc., Model #250-0046-003. If the device is discontinued for any reason, you must so notify the telephone company.

The ICOM phone patch has a standard D4-QK telephone cord w/plug attached. After completing the balance of your installation, plug this into the telephone company supplied jack and your patch is ready to use after you have completed the "null" adjustments. If there are any problems with the telephone line, disconnect the unit immediately until the trouble has been located.

This phone patch may not be connected to party lines nor on coin lines.





The telephone company may make changes in their facilities, equipment, operations or procedures that might affect the operation of this phone patch and if such changes are made, you should receive adequate notice in writing to give you an opportunity to adjust to these changes.

2. The phone patch is ready to connect directly to your ICOM transceiver.
  - a. Plug in the short remote speaker cable into the speaker output jack on your transceiver and into the speaker input jack on the back of the phone patch. With the patch in the "off" position, the speaker in the phone patch should be on.
  - b. Plug your ICOM microphone into the 4 prong socket in the back of the phone patch.
  - c. Plug the black cable from the phone patch into the microphone jack on your ICOM transceiver.
3. With these connections made, your transceiver or transmitter receiver equipment should work normally when the patch is in the "off" position.

In the "patch" position, audio on the telephone line is fed into the microphone input of your transmitter and the receiver output audio goes into the telephone line, the speaker is mute but you can monitor the conversation in your telephone.

4. Connect the telephone connection cable furnished to the 2 terminals L1 and L2 and insert the plug in the telephone line RJ-11 Jack.

If you want to avoid the expense of having the telephone company install a 2nd RJ-11 Jack for your ICOM phone patch along side the one you already have, you can buy a duplex "plug-jack" from the phone company or radio shack that plugs into the single jack on your telephone line and has two sockets, one for your telephone and one for your phone patch. Your patch should now be ready to adjust and use.

#### Initial adjustments:

1. Make certain the PHONE PATCH switch is in the "off" position.
2. Tune in a steady, strong signal on the station receiver and adjust the receiver audio gain for a comfortable listening level.
3. If voice operation is desired, adjust the VOX and anti-trip controls on the transmitter for proper voice operation.
4. Set the three controls on the PHONE PATCH to the midway points.



5. Call a local party on the phone and ask his help on some tests.
6. Turn the PHONE PATCH switch to the PATCH position. This will disable the speaker and transfer the receiver audio into the phone line. It will also disconnect the microphone from the transmitter input and connect the phone line audio to the transmitter input. The station operator must use the telephone for listening and talking.
7. While listening to the signal received on the telephone, adjust the RCVR GAIN control on the PHONE PATCH until a suitable audio level is obtained on the telephone. Do not adjust for maximum volume. Keep the audio from the receiver at a level comparable to ordinary telephone conversation levels. Excessive audio from the receiver will result in clipping and distortion of the signal.
8. Energize the transmitter and have the other party speak into the phone in a normal voice. Adjust the XMTR GAIN control to obtain normal modulation on the transmitter.
9. Turn the transmitter to the VOX position. At this point the signal from the receiver may tend to turn on the transmitter. Slowly rotate the NULL control through its range. An area will be found where the received signal no longer energizes the transmitter. Set the NULL control to the center of this range.
10. Check to see that the VOX circuit is properly energized when the other party speaks.
11. Set the selector switch to the OFF position.

#### OPERATION

1. Call a party on the telephone. Explain that he will be "on the air" when he is speaking. When a person is using the patch for the first time, explain the basic procedures involved in either voice-operated transmission or push-to-talk operation. The party may have to indicate by "over" or some other expression that he is through speaking so that the PTT or manually operated switch may be thrown at the proper time for transmitting and receiving.
2. Once the party has been contacted and the explanations completed, turn the switch on the PHONE PATCH to the PATCH position. This will automatically feed the receiver audio into the phone line and transfer the phone line audio to the transmitter input, as well as disabling the station microphone and speaker.
3. The station operator will have to listen and speak on the telephone in order to carry on a conversation. In a VOX installation, the operation of the patch is automatic and people will quickly become accustomed to the pause in the conversation so that they may answer or listen at the proper times.





4. In a push-to-talk (PTT) installation, the station operator will have to follow the conversation on the telephone and manually operate or disable the transmitter when the party on the telephone wants to speak or listen.
5. When the patch is completed, be sure the switch is returned to the "off" position.

There are a few important rules to follow regarding Phone Patches.

1. Call the party on the telephone and explain that he will be on the air. Explain any special operating procedures he should observe. THEN switch to the PATCH position.
2. Keep the phone line speech levels as low as possible by means of the RCVR and XMTR GAIN controls. High levels cause cross-talk and interfere with other conversations.
3. Don't let dial tones, dial clicks or operator's voices go out over the air.
4. Don't jeopardize your license by accepting commercial calls or by other improper operating procedures.
5. Keep the PHONE PATCH switch in the "off" position at all times except when actually handling phone patch traffic.
6. If trouble occurs, disconnect the patch from the telephone line.
7. If there are any defects or repairs required to this phone patch, it must be returned to the factory for same.

WM. M. NYE COMPANY, INC.  
1614 130th N.E.  
Bellevue, Washington 98005  
(206) 454-4524



# NYE VIKING Low Pass Filter

The Nye Viking 020-001 Low Pass Filter is a 50 ohm bi-directional low pass, constant K filter that, properly installed, will provide up to 65 db's of attenuation of all harmonics at and above 57 Mhz (Channel 2).

It will handle power levels up to 1,000 watts CW and SSB peaks up to 5,000 watts when the standing wave ratio does not exceed 1.5:1. With higher SWR the power handling capability is reduced. The 3 db down frequency is approximately 45 Mhz and the filter should not be used for the 6 meter amateur band.

Standard UHF SO-239 Coaxial Connectors are used for input and output terminals. . . . the unit is completely assembled and pretuned at the factory.

Radio transmitter interference arises from many sources and the installation of a low pass filter may not necessarily cure all problems but it will greatly reduce the transmission of unwanted harmonics into the antenna system. Many TV sets, hi-fi receivers, and FM radios are poorly shielded and do not sufficiently attenuate the legitimate signals that you are transmitting. It may also be necessary to install high pass filters and perhaps even shield the defective equipment to eliminate undesired interference.

## INSTALLATION

The Nye Viking 020-001 Low Pass Filter should be installed as close to the transmitter output coax fitting as possible. If a linear amplifier is used the filter should be installed as close to the output of the linear as possible. The transmitter and linear should be well grounded with as large a grounding conductor as possible. If an antenna tuner is used, it too should be well grounded. The filter should be securely mounted to a flat surface.

If there is an appreciable amount of harmonic content in the transmitted signal or the standing wave ratio is very high then there will be considerable heat generated in the filter and this must be dissipated with a suitable heat sink.

Nye Viking products are guaranteed for a period of two years against defective material and poor workmanship.

Manufactured by the: Wm. M. Nye Company, Inc.  
1614 130th Avenue N. E.  
Bellevue, WA 98005

MADE IN U.S.A.





# WHY USE AN ANTENNA IMPEDANCE MATCHING NETWORK -- (MATCHBOX)

There are many reasons to use an antenna tuner---

1. To match the transmitter or amplifier output impedance with antenna input impedance at various frequencies, thus insuring the greatest transfer of power to a given antenna.

2. A good tuner will reduce radiated interference. An antenna tuner properly adjusted will provide 20 or more DB attenuation at 2nd harmonics and above. This amounts to a reduction of harmonic output power of more than 100 to 1---something not accomplished with a standard low pass filter, which normally starts attenuating around 45 MegaHertz. Thus your tuner will reduce the amount of spurious radiation from your radio station and reduce the interference to other services.

3. An antenna tuner allows you to tune over a much wider range of frequencies and still maintain an excellent power transfer to a given antenna.

4. The final amplifier in any transmitter or linear is subject to greater loads as the SWR increases and this extra load results in added heat loss and shorter life for the equipment and poor performance. Many of the new solid state amplifiers have limiting circuits that reduce the power output if the SWR exceeds a predetermined value. Some units will be damaged if the SWR is too high. The antenna tuner reduces the load on the amplifier.

5. Perhaps of equal importance and often overlooked is the attenuation of surious signals into your receiver thus improving reception. The antenna tuner becomes a tuned RF circuit to the input of your receiver.

AN ANTENNA TUNER IS AN EXCELLENT AND VALUED ADDITION TO ANY RADIO STATION. AMATEUR OR COMMERCIAL....

## OTHER NYE VIKING PRODUCTS

Model No.	Description
ANT-001	All Band Dipole Antenna.
MB-I-01	100 Watt Antenna Tuner w/out Balun.
MB-I-02	100 Watt Antenna Tuner with balun.
MB-IV-A	3000 Watt Antenna Tuner w/out Balun.
MB-IV-B	3000 Watt Antenna Tuner with Balun.
MB-V-A	3000 Watt Tuner w/Antenna Switch.
50216-B	Split Stator 7000 Volt Var. Capacitor.
50217	24 Micro-henry Variable Inductor.
020-001	2000 Watt Low Pass Filter.
SWR-001	Auto SWR/WATT Meter for 1.5 to 30 MHz.
SWR-002	Auto SWR/WATT Meter for 140-160 MHz.
SWR-003	Auto SWR/WATT Indicator for the Blind.
046-001	FCC Approved Phone Patch.
046-003	FCC Approved Phone Patch with Speaker.
046-006	Approved Phone Patch for ICOM sets.

## KEYERS

ESK-001	Iambic Keyer w/out Paddles.
SSK-1-K	Iambic Keyer with built in Paddles.
SKM-016	Iambic Keyer w/ 16,000 bit Memory.

## Keys

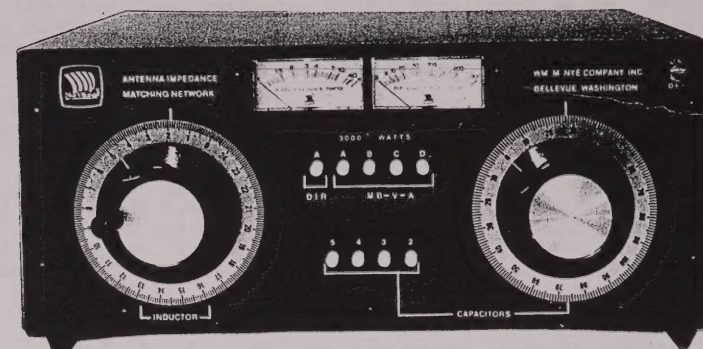
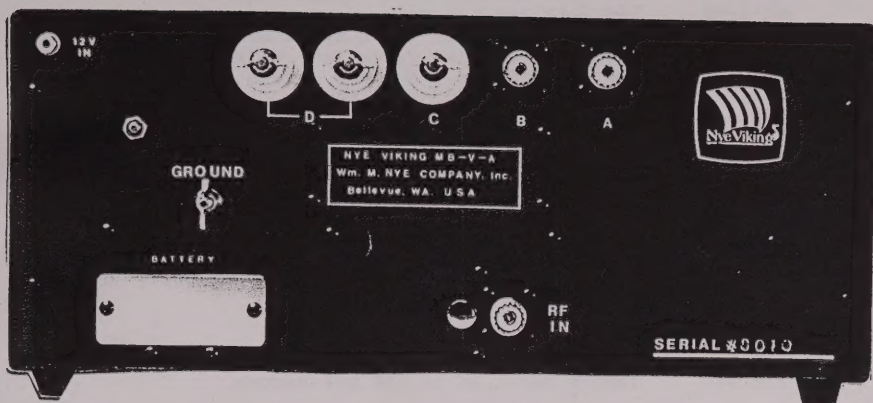
310-001	Black Enamel Oval Base Key w/out Sw.
310-003	Same as above w/switch.
312-001	Oval key with Brass Plated Hdwe.
312-003	Same as 312-001 except w/switch.
320-001	Black Enamel Rectangular Base Key.
320-003	Same as 320-001 except w/switch.
321-001	Same as 320 except base is Chrome Pl.
321-003	321 w/switch.
322-001	Brass Hardware on 320 Key.
322-003	Same as 322 except with switch.
330-001	Master Key w/cord and plug.
330-1CP	Master Key w/Chrome plated base.
SSK-001	Squeeze key with dual paddles.
SSK-1CP	Same as SSK except Chrome Plated.
SSK-003	SSK-001 Mtd on base to hold hand key.
404-001	Code Practice set w/out Key.
404-002	Code Practice set with 310-001 Key.
112-001	Telegraph Sounder 4 Ohm.
112-002	Telegraph Sounder 50 Ohm.



# INSTRUCTION MANUAL

Model MB-V-A

NYE VIKING 3000 WATT ANTENNA TUNER



Wm. M. Nye Co., Inc.  
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